

California Integrated Waste Management Board

Board Meeting

March 15-16, 2005

AGENDA ITEM 22 (Revised)

ITEM

Discussion And Consideration Of Conversion Technology Report To The Legislature

I. ISSUE/PROBLEM STATEMENT

Assembly Bill 2770 (Matthews, Chapter 740, Statutes of 2001) required the Board to research and evaluate new and emerging noncombustion thermal, chemical, and biological technologies and submit a report to the Legislature. The report must contain the following:

1. Specific and discrete definitions and descriptions of each conversion technology evaluated.
2. A description and evaluation of the lifecycle environmental and public health impacts of each conversion technology in comparison to those environmental and public health impacts from the transformation and disposal of solid waste.
3. A description and evaluation of the technical performance characteristics, feedstocks, emissions, and residues used by each conversion technology and identification of the cleanest, least polluting conversion technology.
4. A description and evaluation of the impacts on recycling and composting markets as a result of each conversion technology.

II. ITEM HISTORY

- The Board has considered several items related to conversion technologies over the last several years. In December 2000, the Board approved the Scope of Work for the “2001 Conversion Technologies For Municipal Residuals” Forum, providing \$50,000 for this purpose, and approved the California State University Sacramento Foundation as contractor. The Forum was held on May 3-4, 2001, with over 160 attendees. At its May 22-23, 2001 meeting, Agenda Item 26 entitled “Discussion And Consideration Of Findings And Recommendations From The 2001 Conversion Technologies For Municipal Residuals Forum” was presented. The Board directed staff to work in five areas:
 - Interagency coordination
 - Follow-up workshops/symposia
 - Leveraging Federal and State dollars
 - Develop proposal for small-scale grants and lifecycle research
 - Assist applicants in permitting process
- At its April 16-17, 2002, meeting the Board heard Agenda Item 34, “Consideration Of Diversion Credit For Materials Sent To Conversion Facilities And A Definition Of “Conversion”.” The Board adopted recommendations regarding a definition of “conversion,” conditions under which diversion credit might be available to local jurisdictions that send post-recycled materials to conversion facilities, and the potential level of diversion credit that might be available to jurisdictions. The Board also directed staff to work with the Office of Environmental Health Hazard Assessment (OEHHA) to assess scientific research on emissions from different conversion technologies. Initial work on this is being conducted as a task under an existing Board contract with OEHHA, which the Board augmented at its May 14-15, 2002 meeting in Agenda Item 6, “Consideration Of Augmentation And

Amendment Of Contract Number IWM-C0167 With The Office Of Environmental Health Hazard Assessment For Risk Assessment Assistance (FY 2001/2002 Contract Concept Number 12).”

- At the April 2002 meeting, the Board also heard Agenda Item 32, “Consideration Of University California, Davis As Contractor For Conversion Technology Evaluation (FY 2001/02 Contract Concept Number 22).” The Board approved the University of California at Davis as contractor for an interagency agreement, with funding of \$40,000, to conduct preliminary research on identifying non-combustion technologies that can utilize post-recycled and/or post-consumer solid waste for the production of alternative fuels, energy, and industrial chemicals.
- At its January 14-15, 2003 meeting, the Board heard Agenda Item 56, “Consideration Of Scope Of Work For Conversion Technologies Life Cycle And Market Impact Assessment Contract (FY 2002-03 AB 2770 Appropriation).” That scope of work formed the basis for a Request For Proposal that was issued in late January 2003. At its April 23, 2003 meeting, the Board heard Agenda Item 27, “Consideration of Contractor For Conversion Technology Lifecycle and Market Impact Assessment Contract” and approved Research Triangle Institute as the contractor.
- At its February 11, 2003 meeting, the Board approved the scope of work and awarded a contract in the amount of \$400,000 to the University of California Riverside, Center for Environmental Research & Technology (CE-CERT), for the evaluation of conversion technology processes and products. CE-CERT worked in cooperation with UC Davis in performing the tasks approved by the Board.
- At its September 21-22, 2004 meeting, Board staff and its contractors presented results of a conversion technology lifecycle/market impact study and a study on the evaluation of conversion technology processes and products. Stakeholders were provided an opportunity to discuss their opinions of the study findings.
- Board staff presented the draft report as a discussion item at the Board’s January 11, 2005 Sustainability and Market Development Committee meeting and the January 18, 2005 meeting.

III. OPTIONS FOR THE BOARD

The Board may choose to:

1. Adopt the report, as amended, titled, *Conversion Technology Report to the Legislature* and direct staff to forward the report through Cal/EPA and the Governor’s Office to the Legislature.
2. Direct staff to make modifications to the report.
3. Take no action and provide staff with further direction.

IV. STAFF RECOMMENDATION

Board staff recommends the Board adopt Option 1 and Resolution Number 2005-78.

The Conversion Technology Report to the Legislature (CT Report) recommends the following:

- ~~Deletion and m~~ Modification of definitions

- Additional collection of data
- Conducting research on materials flow
- Establishment of an interagency working group to address cross-media issues
- Recommendation for Legislature to consider diversion credit
- ~~Appropriate level of diversion credit for conversion technology facilities~~

V. ANALYSIS

A. Key Issues and Findings

Staff and Board members received a number of comment letters on the draft CT Report that was discussed at the January Board meeting. Those comments can be categorized as follows:

- 1) Definitions
- 2) Data Gaps
- 3) Feedstock Regulation/Cessation of Waste
- 4) Hierarchy Discussion
- 5) Diversion Credit
- 6) Cleanest, Least Polluting Technology

Those comment letters were posted on the Conversion Technology web page (<http://www.ciwmb.ca.gov/Organics/Conversion/Events>). Subsequent to the January 2005 Board meeting, staff established a February 15, 2005 deadline to submit comments on the draft CT Report. Additional comment letters were received and will have been posted on the Conversion web page by the time this agenda item is published. ~~Because of notice requirements, this agenda item was prepared prior to a March 4, 2005 staff workshop to discuss a revised version of the CT Report.~~ Staff will prepare and distribute a compilation of written and oral comments and staff's response to those comments. Distribution will include posting on the Board's Conversion Technology web page and distribution to Conversion Technology listserve subscribers.

Data collection efforts for emissions and operational parameters of existing conversion facilities (Japan and Europe) are underway and we are extending the existing contract with UC Riverside to maintain the data collection efforts beyond the adoption of the CT Report. Once data has been collected and analyzed, we will present an item to the Board on the results of our data collection efforts. This information can be included in the Board's next Annual Report to the Legislature or other means to update the Legislature.

The CT Report addresses the following issues which are the minimum requirements for the report:

- Specific and discrete definitions and descriptions of each conversion technology evaluated.
- A description and evaluation of the lifecycle environmental and public health impacts of each conversion technology in comparison to those environmental and public health impacts from the transformation and disposal of solid waste.
- A description and evaluation of the technical performance characteristics, feedstocks, emissions, and residues used by each conversion technology and identification of the cleanest, least polluting conversion technology.
- A description and evaluation of the impacts on recycling and composting markets as a result of each conversion technology.

In addition, the CT Report has been amended to include the following policy recommendations:

- 1) Existing definition of “gasification” be amended to be more scientifically accurate.
- 2) The definition of “conversion” approved by the Board in Resolution Number 2002-177 be promulgated in law. Board staff is of the opinion that more specific definitions can be developed during a regulatory process.
- 3) The “transformation definition be ~~eliminated and create a new definition for “combustion” or the “transformation” definition~~ be amended to mean the combustion or incineration of solid waste. This would require corresponding changes in the Public Resource Code and other pertinent statutes.
- 4) Additional data should be collected on emissions from thermochemical and biochemical conversion technologies. The emissions studies should be conducted by an independent third-party and could include facilities at locations throughout the world. The emissions studies should include measurement of metals, dioxins and furans, other hazardous compounds, and fugitive gas and particulate matter emissions, in addition to criteria pollutants.
- 5) Conduct research on materials flow in California to document California’s recycling infrastructure. Mapping the flow of materials will aid in maintaining the integrity of the existing recycling infrastructure while helping to determine infrastructure needs for conversion technologies. Ultimately this will help ensure that all facilities and operations behave as an integrated system.
- 6) Establish an Interagency Conversion Technology Task Force to address cross-media issues. The task force would include a representative from local government and from an environmental organization. The task force would assist in developing a research agenda recommended in #4 above.
- 7) A recommendation for the Legislature to consider some level of diversion credit for conversion technologies. In considering diversion credit, certain conditions could be placed upon conversion operators and jurisdictions to further ensure that the diversion infrastructure is maintained. Grant the Board authority to allow diversion credit for conversion technologies in accordance with the Board Resolution 2002-177. This recommendation would include a requirement that the Board annually evaluate the amount of diversion credit that can be claimed by a jurisdiction that sends materials to that facility and evaluate the effects of allowing diversion credit for conversion technologies. The analysis and any recommendations on whether the level of diversion credit should be increased would become part of the Board’s Annual Report.

The CT Report has also been amended to address technical and editorial comments received by stakeholders.

B. Environmental Issues

Based on available information, staff is not aware of any environmental issues related to this item. However, information from the report could serve as the basis for future Board action regarding organic materials market development or oversight to protect the environment. Impacts could also result from actions taken by others in response to the report, including local government, the Legislature, other state entities, federal government, landfill owners/ operators, and the waste industry in general.

C. Program/Long Term Impacts

The Board may choose to adopt all or some of the recommendations in this report which may result in some program impacts. However, information from the report could serve as the basis for future Board action regarding market development activities which could result in future impacts to existing programs for the short and long terms.

D. Stakeholder Impacts

Impacts are dependent on the direction given by the Board and the subsequent actions and activities undertaken. However, information from the report could serve as the basis for future Board action regarding market development activities which could result in future impacts to stakeholders.

E. Fiscal Impacts

No fiscal impact to the Board results from this item. However, information from the report could serve as the basis for future Board action regarding market development which could result in future fiscal impacts.

F. Legal Issues

Based on available information, staff is not aware of any legal issues related to this item.

G. Environmental Justice

Based on available information, staff is not aware of any environmental justice issues related to this item. However, information from the draft report could serve as the basis for future Board action regarding market development activities, as well as action by other entities, which could be related to environmental justice.

H. 2001 Strategic Plan

This item supports the following Strategic Plan Goals and Objectives:

- Goal 2, Objective 2, Strategy E – Facilitate research and information on new technologies
- Goal 2, Objective 3, Strategy F - Support local government efforts to use alternative means of diverting waste, including the use of conversion technology where residuals can be converted directly into electricity and actively managed to increase fuel and gas production.
- Goal 4, Objective 3, Strategy B - Foster and maintain partnerships to accelerate the development, evaluation, and implementation of innovative waste management technologies.
- Goal 7, Objective 3, Strategy A - Assemble a cross-media team to develop standards for evaluating new technologies that produce less waste and convert residuals to their highest and best use.

VI. FUNDING INFORMATION

N/A-Discussion item

VII. ATTACHMENTS

1. Draft Conversion Technology Report To The Legislature (available closer to meeting)
2. Resolution Number 2002-177 (adopted by Board in April 2002)
3. Resolution Number 2005-78

VIII. STAFF RESPONSIBLE FOR ITEM PREPARATION

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IX. WRITTEN SUPPORT AND/OR OPPOSITION

A. Support

Staff did not receive any written support for this agenda item prior to its being submitted for publication.

B. Opposition

Staff did not receive any written opposition for this agenda item prior to its being submitted for publication.

CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

Resolution 2002-177 (Revised)

Consideration Of Diversion Credit for Materials Sent To Conversion Facilities And A Definition Of "Conversion"

WHEREAS, organic materials, paper, and plastics make up over three-fourths of what is landfilled in California; and

WHEREAS, non-combustion technologies such as gasification and hydrolysis exist that can convert unused, post-recycled materials into high-value products; and

WHEREAS, the Board's Strategic Plan encourages research on new technologies, supports local government efforts to use alternatives to landfilling (including conversion technologies), and promotes a "Zero-waste California" where the public, industry, and government strive to reduce, reuse, or recycle all municipal solid waste materials back into nature or the marketplace; and

WHEREAS, major barriers identified by participants at the Board's May 2001 "Conversion Technologies For Municipal Residuals" Forum included statutory and regulatory constraints; and

WHEREAS, staff held the "Regulation Of Conversion Technologies Workshop" on January 8, 2002, at which approximately 40 representatives from the technology industry, solid waste management industry, environmental community, and local and State governments discussed the regulatory and permitting framework for conversion technologies and diversion issues and developed recommendations; and

WHEREAS, upon direction by the Board at its February 19-20, 2002 meeting, staff convened a small working group that met on March 8, 2002, to further discuss the definition and diversion credit issues; and

WHEREAS, the working group reached consensus regarding a definition for conversion and findings that the Board should make in order for local jurisdictions to receive diversion credit, but did not reach consensus on whether to support a level of full, 25 percent, or 10 percent diversion credit;

NOW, THEREFORE, BE IT RESOLVED that the Board approves the following policy recommendations:

Option 2B (Definition): "'Conversion" means the processing, through non-combustion thermal means, chemical means, or biological means, other than composting, of residual solid waste from which recyclable materials have been substantially diverted and/or removed to produce electricity, alternative fuels, chemicals, or other products that meet quality standards for use in the marketplace, with a minimum amount of residuals remaining after processing."

(over)

Option 3 (Findings): "Diversion credit shall be available if the Board makes the following findings: (1) the jurisdiction continues to implement the recycling and diversion programs in the jurisdiction's source reduction and recycling element or its modified annual report; (2) the facility complements the existing recycling and diversion infrastructure and is converting solid waste that was previously disposed; (3) the facility maintains or enhances environmental benefits; and (4) the facility maintains or enhances the economic sustainability of the integrated waste management system."

Option 4 (Report): "Beginning in 3 years after a conversion facility is permitted by the CIWMB and is operational, the Board shall, in its annual report to the Legislature, summarize the status of the conversion industry, including a list of permitted facilities and their contribution to the diversion of materials from landfills."

Option 5C (Level of Diversion Credit): "Jurisdictions that meet all of the above criteria [i.e., the findings by the Board] will be eligible for 10 percent diversion credit. Three years after a conversion facility is permitted by the CIWMB and is operational, the Board shall annually evaluate the amount of diversion credit that can be claimed by a jurisdiction, on a case-by-case basis, that sends materials to that facility. As part of its annual report to the Legislature in 2005, the Board should evaluate the effects of allowing diversion credit for conversion technologies and provide recommendations on whether the level of diversion credit should be increased as part of the AB 939 framework."

BE IT FURTHER RESOLVED that the Board directs staff to work with the Office of Environmental Health Hazard Assessment to assess scientific research on air emissions from different conversion technologies.

AND BE IT FURTHER RESOLVED that the Board recognizes that these policy recommendations and the need for conforming amendments may change during the normal course of legislative debate and procedures, and that the Board directs staff to work with Cal/EPA on responding to such changes.

CERTIFICATION

The undersigned Executive Director, or his designee, of the California Integrated Waste Management Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the California Integrated Waste Management Board held on April 16-17, 2002.

Dated: April 17, 2002

ORIGINAL SIGNED BY

Mark Leary
Executive Director

CALIFORNIA INTEGRATED WASTE MANAGEMENT BOARD

Resolution 2005-78 (Revised)

Discussion And Consideration Of Conversion Technology Report To The Legislature

WHEREAS, the 2003-2004 Waste Composition Study indicates that approximately 40 million tons of waste is landfilled in California; and

WHEREAS, Zero Waste is a primary goal of the Board's strategic plan; and

WHEREAS, Assembly Bill 2770, Chapter 740, Statutes of 2002, was signed by Governor Davis in September 2002 and required the CIWMB to research and evaluate new and emerging non-combustion thermal, chemical, and biological technologies and submit a report to the Legislature; and

WHEREAS, The CIWMB contracted with the University of California to conduct an analysis of conversion technology processes and products; and

WHEREAS, The CIWMB also contracted with RTI, International to conduct life cycle and market impact analyses of conversion technologies; and

WHEREAS, these peer reviewed reports served as the major source of information for the CIWMB Conversion Technology Report to the Legislature; and

WHEREAS, CIWMB staff conducted stakeholder workshops to discuss prior to preparation of the *Conversion Technology Report To The Legislature*; and

~~**WHEREAS**, CIWMB staff accepted written comments and held two stakeholder workshops to discuss the draft *Conversion Technology Report To The Legislature*; and~~

WHEREAS, CIWMB staff accepted written comments and has considered stakeholder comments and amended the Report based on the stakeholders comments.

NOW, THEREFORE, BE IT RESOLVED, that the Board adopts Option 1 and the *Conversion Technology Report To The Legislature*; and

BE IT FURTHER RESOLVED, that the Board directs staff to forward the Report through Cal/EPA and the Governor to the Legislature; and

CERTIFICATION

The undersigned Executive Director, or his designee, of the California Integrated Waste Management Board does hereby certify that the foregoing is a full, true, and correct copy of a resolution duly and regularly adopted at a meeting of the California Integrated Waste Management Board held on March 15-16, 2005.

Dated:

Mark Leary
Executive Director